



USAID
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CLEAN AND EFFICIENT COOKING TECHNOLOGIES AND FUELS

8. CROSS-SECTORAL COLLABORATION



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8. CROSS-SECTORAL COLLABORATION

The potential impacts from widespread adoption of cleaner, more efficient cookstoves and fuels are most often linked directly with energy, health and environment objectives, but can also extend beyond these sectors. Cleaner, more efficient stoves and fuels can support advancement of objectives in gender and socio-economic programs, humanitarian response and protection interventions, and commercial cooking/school feeding programs as well.

WHY IT MATTERS

Cleaner and more efficient stoves and fuels can support wider agency priorities and amplify impacts around gender, humanitarian response and protection, and school feeding or other types of commercial cooking, but only when proper planning or resources are allocated.

BEST PRACTICES

1. Remember that, as the primary users of household energy, women can play a key role throughout all aspects of the cookstove and fuels value chain. The resources included here around integrating and empowering women to participate in the cookstove value chain can be extended to other entrepreneur development efforts as well.
2. During program planning, consider that women and men experience the impacts of household energy changes differently, and be sure to use gender-informed strategies for behavior change (e.g., technology or fuel switching), promotion and marketing efforts.
3. It's critical to prioritize, and carefully plan for, energy needs in humanitarian response and protection efforts. Various handbooks and guidance materials are available to help you integrate energy access into humanitarian interventions. Energy needs are even more pressing in vulnerable, displaced populations.
4. Institutional stoves have the potential to deliver major cost or time savings for commercial cooking or school feeding programs, but commercial markets for institutional stoves remain largely underdeveloped. Especially in the case of fuel switching, be sure to devote sufficient resources to training cooks and developing distribution chains and repair and maintenance service channels.

GENDER-BASED APPROACHES AND IMPACTS

“Women are disproportionately impacted by dirty and inefficient cooking practices and reliance on biomass for fuel. Yet women are not just victims. They play a crucial role in the widespread adoption and use of clean cooking solutions because of their central responsibility for cooking and managing household energy.” *Scaling Adoption of Clean Cooking Solutions through Women’s Empowerment: A Resource Guide – Global Alliance for Clean Cookstoves (Alliance).*

Because women often manage household energy resources – with women playing critical, multidimensional roles as cookstove and fuel users, producers, sellers and adoption influencers – gender considerations need to be woven throughout the entire cookstove and fuel value chain, especially given that women may lack mobility and the ability to control household finances. Likewise, incorporation of cookstove and cooking fuel issues into gender-focused programming can support the further advancement of women’s empowerment and gender equity goals. To this end, the Alliance developed a [resource guide](#) for scaling the adoption of clean and efficient cookstoves and fuels through greater integration of women in the entire cookstove and fuel value chain: product design; production; finance; distribution; and after-sales services. This guide includes best practices for engaging women in each of these value chain segments as well as universal best practices to engage women; for example conducting a gender analysis to understand community gender roles and dynamics, and scheduling times and locations of meetings and activities around women’s availability. Examples of specific value chain best practices include gathering feedback on product design from women via in-home trials; integrating livelihood opportunities for women in production processes; educating women’s groups on how to access consumer finance as a group; and using gender-informed marketing messages and methods, and women and girl-focused community groups for awareness raising.

In 2014, the Alliance commissioned a randomized controlled trial, led by Johns Hopkins University (JHU) and implemented by ESVAK Kenya, to determine the impact of agency-based empowerment training on cookstove entrepreneur sales in Kenya (for both men and women). Unlike traditional resource-based empowerment programs that provide externally-focused support (skills, education, financing), agency-based empowerment focuses on enhancing an individual’s cognitive capacity to create and focus on his/her goals, and prepares him/her to effectively take advantage of opportunities when they arise. The [JHU Kenya study](#) found that women entrepreneurs who received the agency-based training sold nearly 3 times as many improved cookstoves as men generally; men and women getting the enhanced training were 2.7 times more likely to be high sellers; and women and men who received the agency-based empowerment training were twice as likely to pursue sales leads and continue their business activities when faced with challenges. Based on these findings, the Alliance contracted the Visionaria Network to develop a full curriculum with JHU, focused on the specific needs and challenges faced by women cookstove entrepreneurs, but relevant for both men and women, that builds key skills in business, agency-based empowerment and leadership. That curriculum, called the [Empowered Entrepreneur Training Handbook](#), is being rolled out globally through the USAID Developing a Sustainable Cookstove Sector project. The handbook walks organizations through a Human-Centered Design process that creates a tailored program to fit the individual needs of women and men working as cookstove entrepreneurs, including considerations for setting up the training agenda to ensure equity in participation. Additional relevant research findings are included at the end of this page.

As primary cooks, women face disproportionate direct [health impacts](#). There are also serious safety burdens – both in traditional cooking and fuel collection practices – that are overwhelmingly borne by women. These include burns, eye irritations, and back injuries from tending fires, as well as the risks of harassment, assault, injury or rape during fuel collection trips. The Women’s Refugee Commission has long been an important resource for information and guidance around prevention of gender-based violence in refugee settings, including related to fuel collection: <https://www.womensrefugeecommission.org/gbv/firewood>.

OTHER RESOURCES

<http://www.energia.org/cms/wp-content/uploads/2015/06/94-What-motivates-women-to-buy.pdf>

<http://www.sciencedirect.com/science/article/pii/S1877343513000389>

HUMANITARIAN RELIEF AND PROTECTION

AN ESTIMATED “20,000 DISPLACED PEOPLE DIE PREMATURELY EACH YEAR FROM RESPIRATORY ILLNESSES AS A RESULT OF HOUSEHOLD AIR POLLUTION CAUSED BY BURNING WOOD, CHARCOAL, KEROSENE AND OTHER FUELS INDOORS. SHELTERS CATCH FIRE AND CHILDREN ARE SOMETIMES ACCIDENTALLY POISONED BY DRINKING KEROSENE” – MOVING ENERGY INITIATIVE

Clean, efficient stoves and fuels can have life-changing impacts in refugee and IDP settings, where access to fuelwood is often extremely scarce, and the need for safer cooking options is an urgent necessity. [The Global Alliance for Clean Cookstoves](#) provides an overview of [cooking in humanitarian settings](#) on its website, as well as a compilation of [innovative cooking and fuel interventions](#) in this sector. The Alliance’s clean cooking catalog can serve as a resource for humanitarian partners procuring stoves and making technology selections for crisis-affected people. The Alliance also Co-Chairs the [Safe Access to Fuel and Energy \(SAFE\) Humanitarian Working Group](#), a consortium of partners who work to facilitate a “more coordinated, predictable, timely and effective response to the fuel and energy needs of crisis-affected populations,” specifically those concerning heating, lighting, cooking, and powering. The SAFE Working Group is a global effort to improve coordination and information sharing, commission research, provide technical support and guidance for implementation, build human resource capacity, conduct advocacy, and mobilize resources. SAFE holds an [annual training for humanitarian implementers](#) and energy sector stakeholders to learn how to implement energy access interventions in humanitarian settings. Additionally, a SAFE expert roster is under development, which will include a list of experts that can be deployed to address energy issues in emergencies, as well as in protracted settings. That roster will be publically available on the SAFE website once completed. The SAFE Working Group’s website has an extensive [resource library](#), which includes guidelines and recommendations, toolkits, webinars, project evaluation reports, workshop proceedings, and research publications that range from camp-specific and country-level to global in scope.

One global-level resource is the [World Food Program’s Handbook on Safe Access to Firewood and Alternative Energy](#), which is a how-to guide on implementing energy projects in humanitarian settings. This is also used to help WFP staff in designing and implementing effective energy approaches. While not all agencies are prioritizing energy, UNHCR’s [Global Strategy for Safe Access to Fuel and Energy](#) (2014 -2018), covers five main strategic objectives around this issue: 1) better integrate energy into emergency preparedness and response activities, 2) develop country-level strategies, 3) improve household-level access to energy, 4) improve energy access for schools and other institutions, and 5) establish and manage woodlots for fuel provision.

Another available resource is the [“Fuel-efficient stove programs in humanitarian settings”](#) toolkit, developed by USAID’s Energy Division and Office of Foreign Disaster Assistance (OFDA). The toolkit was designed to help guide organizations through the assessment, planning, implementation and M&E processes of a stove activity in humanitarian contexts.

Finally, the Moving Energy Initiative (MEI), a partnership between Chatham House, DFID, UNHCR, the Norwegian Refugee Council, Practical Action Consulting and GVEP International, provides access to [additional resources](#) and conducts research on this topic. MEI has assessed the key challenges related to energy access in humanitarian settings as: 1) insufficient attention (energy access comes behind food, shelter and medical care); 2) insufficient data or consistency in the way energy data is recorded; 3) insufficient long-term funding; 4) insufficient expertise – no designated energy ‘cluster’; 5)



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issues related to refugee status and rights; and 6) practical problems of where camps are located, and lack of security. They also offer several strategies for overcoming these challenges and are members of the SAFE Working Group.

COMMERCIAL COOKING AND SCHOOL FEEDING PROGRAMS

Efficient institutional stoves for small scale enterprises or schools can yield significant fuel savings, which translate directly into monetary and/or time savings for the institution, depending on whether fuel is purchased or gathered.

Institutional stove programs are usually donor-funded, even though they can have very short pay-back times; this limited commercial market can translate into limited after-sales service. However, there are a few examples of where institutional stoves are sold on a commercial basis. In Uganda, International Lifeline Fund (ILF) has set up a credit framework where various institutions such as schools, hospitals, or prisons purchase stoves through a payment plan. Typically, schools with a student body over 200 are able to save 18+ tons of firewood, which is equivalent to approximately US \$1,000 annually. This financing framework facilitates a path for institutions that recognize a need for fuel efficiency, but do not have the startup capital to procure such products.



Starting in 2010, The World Food Programme (WFP) has been undertaking an ambitious program to provide locally-produced institutional fuel efficient cookstoves to 2,000 schools in Ethiopia, aiming to reduce each school's fuel consumption by 50%. Various UN agencies have also purchased internationally-produced institutional stoves for use in humanitarian settings, including 200 stoves for school feeding programs in the Darfur region serving approximately 80,000 children with a stove that can see as much as 75% fuel savings.

Institutional stoves can also be used for small-scale production of products such as shea butter (see collaboration between GIZ, UNDP, L'Occitanne and shea butter women's cooperatives in Burkina Faso) or fish smoking (see SNV work in Ghana). These types of industries, especially at the artisanal/small-scale cooperative level, can be very fuel-intensive. By replacing traditional stoves with improved institutional stoves designed specifically for these uses, producers can save money and time as a direct result of fuel savings.

Various donors and implementers are piloting and investing in institutional stove technologies that can burn alternative fuels such as ethanol, briquettes, or pellets. Gaia Association is working with Babington Technology in Gambella Refugee camp in Ethiopia to introduce institutional stoves which can work with any liquid fuel. In Burundi, WFP is converting over 200 schools from using firewood to using locally made briquettes. In Haiti, WFP has worked with ILF to introduce institutional stoves fueled by locally made briquettes, and has also been exploring LPG, given the urgent need for charcoal alternatives there. Schools in Haiti with 400 students can spend as much as \$300 monthly on fuel. The USAID Improved Cooking Technology Program (ICTP) in Haiti worked to reduce charcoal consumption, which is very demanding on scarce forest resources, in school canteens, orphanages and among street food vendors through introduction of institutional LPG stoves. ICTP was able to convert 239 schools to LPG, 39 orphanages, and 2270 food vendors to LPG from charcoal. Although initial conversion was successful, longer term adoption could not be measured during the project timeframe, and for vendors, maintaining regular LPG use can be difficult due to challenges related to LPG supply and distribution.

The pros and cons of different alternative fuels are discussed fully in the Technologies and Fuels section of this toolkit. Before rolling out any fuel switching program, it's important for donors and implementers to test the fuel efficiency and emissions, as well as market demand, of the stove/fuel combination they plan to promote. It is also critical to note that, with introduction of any institutional stove technology, institutions require a) substantial investment in training and follow up as it takes time for cooks to adopt these new technologies, b) a repair and maintenance system must be in place otherwise users lose confidence and will stop using the stoves, c) a baseline survey before and after the intervention should be done to better measure the intervention impact. In case of feeding programs, it is vital to know the amount of food per student served daily, amount of fuel, cooking time duration, and number of cooks before selecting a stove/fuel combination to promote. Individual program details aside, it is important to develop a comprehensive monitoring and evaluation framework to properly assess the needs of, and impacts on, the users that will be benefitting from the stove intervention.

ENVIRONMENTAL CONSERVATION (FORESTRY / BIODIVERSITY)

Although improved cookstoves and fuels have not been a primary focus of Reduced Emissions from Deforestation and Forest Degradation (REDD+) programming to date, according to a 2015 report by Climate Focus for the Global Alliance for Clean Cookstoves, a quarter of the gross emissions from deforestation in the tropics is attributable to woodfuel emissions from household cooking. They found significant variance by country, but based on a review of existing data and literature sources, discovered that in certain regions – such as East Africa – woodfuel emissions can be “50% or more of nationally reported GHG emissions.” They recommend greater linkages between REDD+ and cookstove programming, sharing knowledge and improving accounting methodologies between REDD+ and woodfuel consumption.

Unsustainable (non-renewable) biomass fuel use for cooking and heating can increase pressures on forests and contribute to local forest degradation. There is uncertainty and variance in the percentage of biomass used for cooking

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that can be considered “non-renewable.” A 2013 report “Assessing the Climate Impacts of Cookstove Projects: Issues in Emissions Accounting” by the Stockholm Environment Institute (SEI) explains that part of that uncertainty arises from a lack of standard approaches for quantifying the fraction of non-renewable biomass (fNRB). Because of this, estimates used for cookstove carbon finance project documentation have relied on UNFCCC default factors based on national-level data for total wood harvesting (without any distinction between fuelwood and timber harvesting), and have been generally higher (80%+) than recent evidence shows from a 2015 Yale / National Autonomous University of Mexico (UNAM) study. That study estimates that about 27-34% of wood fuel harvested worldwide can be considered ‘unsustainable,’ as defined by the amount of harvesting exceeding regrowth. The authors raise an important point about regional and national variability requiring additional study, and point to ‘hotspots’ in South Asia and East Africa where over half the wood use is unsustainable. Other tools for estimating fraction of non-renewability include the Woodfuel Integrated Supply/Demand Overview Mapping (WISDOM) methodology, which looks at spatial variations of biomass at the subnational level. WISDOM requires data inputs which may be unavailable to certain project developers, and has greater applicability in rural areas where people gather fuel for cooking, rather than urban centers where fuel is brought in and sold.

Potential project interventions specifically related to forestry and biodiversity efforts include:

- Introduction of alternative fuels (liquid fuels, briquettes from agricultural or other biomass waste products, pellets, etc.)
- Creation of sustainable wood lots for fuel collection
- Introduction of improved cookstoves that decrease firewood and/or charcoal use.
- Sustainable charcoal production

Monitoring uptake and use of these interventions is critical to identify whether or not they are having the intended impact on forest resources. Monitoring tools available are included in the [M&E section](#) of this toolkit.

Some examples of program integration of cookstoves into forestry and biodiversity objectives include:

- The USAID Central Africa Regional Program for the Environment (CARPE) is focused on sustainable forest management, biodiversity conservation, and climate change mitigation activities in the Congo Basin through improving conservation monitoring and natural resource management. Under this program, in addition to community-managed tree plantations, local women’s associations were supported to produce and promote improved cookstoves in households around Virunga National Park as a way to reduce consumption of biomass for cooking. CARPE partner WWF promoted the production and sale of improved stoves, resulting in 25,000 stoves sold from 2009 – 2013. CARPE also provided improved stoves in IDP camps.
- The Nature Conservancy has programs focused on developing support systems for wood fuel lots and promote fuel-efficient stoves in Haiti among other countries.
- A Gold Standard registered project in the Sundarbans National Park is working to achieve biodiversity protection goals through disseminating Top Lit up Draft (TLUD) stoves. Other gold standard and CDM carbon offset projects with similar biodiversity goals can be found in the Global Alliance’s “Catalog of Carbon Offset Projects and Advisory Service Providers,” which includes a short profile on all current (as of 2015) carbon offset projects involving improved cookstoves and fuels.

ADDITIONAL RESOURCES:

Drigo R, Bailis R, Ghilardi A, Masera O 2015. WISDOM Karnataka - Analysis of woodfuel supply, demand and sustainability in Karnataka, India.

Drigo R, Bailis R, Ghilardi A, Masera O 2015. WISDOM Kenya - Analysis of woodfuel supply, demand and sustainability in Kenya

Drigo R, Bailis R, Ghilardi A, Masera O 2015. WISDOM Honduras - Analysis of woodfuel supply, demand and sustainability in Honduras.

Masera O., R. Bailis, R. Drigo, A. Ghilardi and I. Ruiz-Mercado 2015. Environmental Burden of Traditional Bioenergy Use. Annual Review of Environment and Resources 11/2015; 40(1). DOI:10.1146/annurev-environ-102014-021318.





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